

CLAIMS

1. An isolated nucleic acid molecule comprising a coding sequence for an immunogenic 5 *Streptococcus uberis* CAMP factor.

2. The nucleic acid molecule of claim 1 wherein said coding sequence encodes an amino acid sequence substantially homologous and functionally equivalent to the amino acid sequence shown at positions 10 1 through 256, inclusive, of Figures 4A-4C (SEQ ID NO:____), or an immunogenic fragment thereof.

3. The nucleic acid molecule of claim 1 15 wherein said coding sequence encodes an amino acid sequence substantially homologous and functionally equivalent to the amino acid sequence shown at positions 29 through 256, inclusive, of Figures 4A-4C (SEQ ID NO:____), or an immunogenic fragment thereof.

20 4. A recombinant vector comprising:
(a) a nucleic acid molecule according to claim 1; and
(b) control elements that are operably linked 25 to said nucleic acid molecule whereby said coding sequence can be transcribed and translated in a host cell, and at least one of said control elements is heterologous to said coding sequence.

30 5. A recombinant vector comprising:
(a) a nucleic acid molecule according to claim 2; and

35 sequence can be transcribed and translated in a host

cell, and at least one of said control elements is heterologous to said coding sequence.

6. A recombinant vector comprising:

5 (a) a nucleic acid molecule according to claim 3; and

10 (b) control elements that are operably linked to said nucleic acid molecule whereby said coding sequence can be transcribed and translated in a host cell, and at least one of said control elements is heterologous to said coding sequence.

7. A host cell transformed with the recombinant vector of claim 4.

15 8. A host cell transformed with the recombinant vector of claim 5.

9. A host cell transformed with the recombinant vector of claim 6.

20 10. A method of producing a recombinant CAMP factor comprising:

25 (a) providing a population of host cells according to claim 7; and

(b) culturing said population of cells under conditions whereby the CAMP factor encoded by the coding sequence present in said recombinant vector is expressed.

30 11. A method of producing a recombinant CAMP factor comprising:

(a) providing a population of host cells

(b) culturing said population of cells under conditions whereby the CAMP factor encoded by the coding sequence present in said recombinant vector is expressed.

5 12. A method of producing a recombinant CAMP factor comprising:

(a) providing a population of host cells according to claim 9; and

10 (b) culturing said population of cells under conditions whereby the CAMP factor encoded by the coding sequence present in said recombinant vector is expressed.

13. A vaccine composition comprising a pharmaceutically acceptable vehicle and at least one 15 immunogenic CAMP factor.

14. The vaccine composition of claim 13, wherein said CAMP factor is a *Streptococcus* CAMP factor.

20 15. The vaccine composition of claim 14, wherein said CAMP factor is a *Streptococcus uberis* CAMP factor.

25 16. The vaccine composition of claim 15, wherein said CAMP factor comprises an amino acid sequence substantially homologous and functionally equivalent to the amino acid sequence shown at positions 1 through 256, inclusive, of Figures 4A-4C (SEQ ID NO:____), or an immunogenic fragment thereof.

30 17. The vaccine composition of claim 15, wherein said CAMP factor comprises an amino acid sequence

256, inclusive, of Figures 4A-4C (SEQ ID NO:____), or an immunogenic fragment thereof.

18. The vaccine composition of claim 13,
5 further comprising an adjuvant.

19. The vaccine composition of claim 14,
further comprising an adjuvant.

10 20. The vaccine composition of claim 15,
further comprising an adjuvant.

15 21. The vaccine composition of claim 16,
further comprising an adjuvant.

22. The vaccine composition of claim 17,
further comprising an adjuvant.

20 23. A method of treating or preventing a bacterial infection in a vertebrate subject comprising administering to said subject a therapeutically effective amount of a vaccine composition according to claim 13.

25 24. A method of treating or preventing a bacterial infection in a vertebrate subject comprising administering to said subject a therapeutically effective amount of a vaccine composition according to claim 18.

30 25. A method of treating or preventing a streptococcal infection in a vertebrate subject comprising administering to said subject a therapeutically effective amount of a vaccine composition

26. A method of treating or preventing a streptococcal infection in a vertebrate subject comprising administering to said subject a therapeutically effective amount of a vaccine composition
5 according to claim 15.

27. A method of treating or preventing a streptococcal infection in a vertebrate subject comprising administering to said subject a
10 therapeutically effective amount of a vaccine composition according to claim 16.

28. A method of treating or preventing a streptococcal infection in a vertebrate subject comprising administering to said subject a
15 therapeutically effective amount of a vaccine composition according to claim 17.

29. A method of treating or preventing a
20 streptococcal infection in a vertebrate subject comprising administering to said subject a therapeutically effective amount of a vaccine composition according to claim 19.

25 30. A method of treating or preventing a streptococcal infection in a vertebrate subject comprising administering to said subject a
therapeutically effective amount of a vaccine composition according to claim 20.
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31. A method of treating or preventing a streptococcal infection in a vertebrate subject
35 according to claim 21.

32. A method of treating or preventing a streptococcal infection in a vertebrate subject comprising administering to said subject a therapeutically effective amount of a vaccine composition 5 according to claim 22.

33. A method of treating or preventing mastitis in a mammal comprising administering to said mammal a therapeutically effective amount of a vaccine 10 composition according to claim 15.

34. A method of treating or preventing mastitis in a mammal comprising administering to said mammal a therapeutically effective amount of a vaccine 15 composition according to claim 16.

35. A method of treating or preventing mastitis in a mammal comprising administering to said mammal a therapeutically effective amount of a vaccine 20 composition according to claim 17.

36. A method of treating or preventing mastitis in a mammal comprising administering to said mammal a therapeutically effective amount of a vaccine 25 composition according to claim 20.

37. A method of treating or preventing mastitis in a mammal comprising administering to said mammal a therapeutically effective amount of a vaccine 30 composition according to claim 21.

38. A method of treating or preventing 35 composition according to claim 22.

39. A method of producing a vaccine composition comprising:

(a) providing at least one immunogenic CAMP factor; and

5 (b) combining said CAMP factor with a pharmaceutically acceptable vehicle.

40. The method of claim 39, wherein said CAMP factor is a *Streptococcus* CAMP factor.

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41. The method of claim 40 wherein said CAMP factor is a *Streptococcus uberis* CAMP factor.

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42. The method of claim 41, wherein said CAMP factor comprises an amino acid sequence substantially homologous and functionally equivalent to the amino acid sequence shown at positions 1 through 256, inclusive, of Figures 4A-4C (SEQ ID NO:____), or an immunogenic fragment thereof.

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43. The method of claim 41, wherein said CAMP factor comprises an amino acid sequence substantially homologous and functionally equivalent to the amino acid sequence shown at positions 29 through 256, inclusive, of Figures 4A-4C (SEQ ID NO:____), or an immunogenic fragment thereof.

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